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# Proceedings of the Maritimes Regional Advisory Process of Inshore Scallop

**24-25 November 1999**

**Hayes Boardroom**
**Bedford Institute of Oceanography**
**Dartmouth, N.S.**

René Lavoie
Chairperson

Department of Fisheries and Oceans
Science Branch

September 2000

Canada

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**Foreword**

These Proceedings are a record of the discussions at the Maritimes Regional Advisory Process (RAP) inshore scallop meeting of 24-25 November 1999. They were prepared by volunteer rapporteurs and reviewed by all participants at (following) the meeting. Their purpose is to archive the activities and discussions of the meeting, including research recommendations, uncertainties and to provide a place to formally archive official minority opinions on status reports. As such, interpretations and opinions presented in this report may be factually incorrect or misleading, but are included to record as faithfully as possible what transpired at the meeting. No statements are to be taken as reflecting the consensus of the meeting unless they are clearly identified as such. Therefore, the Status Reports, which contain the consensus decisions of the meeting, should be used as sources of information of the status of the resources assessed. Additionally, the short summaries of stock status presented in these proceedings should not be referenced. The information on which the Status Reports are based are documented in the CSAS Research Document Series and it is these that should be consulted for an accurate reading of this information.

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## ABSTRACT

These proceedings record discussions that were held during the Regional Advisory Process (RAP) meetings for Inshore sea scallop stocks in Maritimes Region in November 1999. The scientific peer review of inshore scallop stock of Digby and Annapolis Basin (SPA 4 and 5), (Brier Island/Lurcher Shoal – SPA 2, 3, and 7), for Bay of Fundy (SPA 1) and for Grand Manan (SPA 6) were conducted at the Bedford Institute of Oceanography (BIO) in Dartmouth on November 24-25. The discussions from this meeting are presented in this document.

## RÉSUMÉ

Le présent compte rendu relate les discussions ayant eu lieu lors des réunions du Processus consultatif régional (PCR) sur les stocks de pétoncle géant des eaux côtières dans la Région des Maritimes, en novembre 1999. L'examen scientifique par les pairs des stocks de pétoncle des eaux côtières de Digby et du bassin d'Annapolis (ZPP 4 et 5), de l'île Brier et de la basse Lurcher (ZPP 2, 3 et 7), de la baie de Fundy (ZPP 1) et de Grand Manan (ZPP 6) s'est déroulé à l'Institut océanographique de Bedford (IOB) à Dartmouth, les 24 et 25 novembre. On trouvera ci-après l'exposé des discussions tenues à cette occasion.

## INTRODUCTION

The meeting of November 24-25, 1999 was convened in the Hayes Boardroom of the Bedford Institute of Oceanography in Dartmouth. The Chairperson, Rene Lavoie welcomed the participants (Appendix 1) who had been invited for the meeting (Appendix 2). The remit (Appendix 3) and the agenda (Appendix 4) were then reviewed.

The external scientific reviewers were:

Professor Jon Grant
Department of Oceanography
Dalhousie University, Halifax NS

Shelton Harley
Graduate Student
Biology Department
Dalhousie University, Halifax NS

A list of the working papers presented at the meeting is given in Appendix 5 and a list of the recommendations produced at the meeting is given in Appendix 6.

The discussions of both meetings are given, by stock, below.

## SPA 4 DIGBY AND SPA 5 ANNAPOLIS BASIN

Working Paper:

Smith, S.J., M. Lundy, and R. Claytor. Scallop Production Areas 4 and 5 in the Bay of Fundy: Stock Status Update for 1999. RAP Working Paper 99/75

Referees: J. Grant and S. Harley

Rapporteurs: P. Koeller and G. Robert

Remit:

- Assess the status of Area 4 scallop at as late in 1999 as possible. The assessment should include:
  -An analysis of existing CPUE and survey information.
  -Where possible, address research recommendations raised in September 1998.

- Produce a section of the Inshore Scallop Stock Status Report and supporting Research Document documenting the results of the assessment.

- Provide advice for the 2000 fishery.

- Produce a section of the Inshore Scallop Stock Status Report and supporting Research Document documenting the results of the assessment.

Issues

*SPA 4 - Digby*

1. Request for more details of calculation made. How many logs were representative of the CPUE? The CPUE should probably be standardised by the important variables such as month, depth, vessel, skipper, boat sizes, etc. It was felt that because of fleet consistency it probably would not make much difference.

2. More coverage in port sampling would be desirable.

3. Plotting CPUE vs abundance could be informative as to what each is telling you.

4. Comments on Leslie method and assumptions - "funnel effect" may require data transformation; compare Leslie and survey results; place confidence intervals on F.

5. Inquiry if meat counts down because of increased recruitment?

6. Spat on lemon weed may be a good sign. Lemon weed would have to be observed in January when spat is approximately 2.0 mm

7. Concern with habitat alterations, changes in benthic community i.e. bryozoans, hydrozoans, lemon weed - no way of telling if they are good or bad relative to scallop recruitment.

8. Assessment concerns, especially with regard to setting of TAC - M in Sissenwine method critical, need error in projections. Need for target limits.

9. Industry people indicated throughout the discussions that the catch data for 1999 is low due to poor weather and other factors (lemon weed, change in distribution of effort). Lower catches in 2000 should not necessarily be interpreted as a stock problem (as much as 30-40% of TAC was uncaught at time of meeting). In addition, the serious misreporting of catches to management areas was acknowledged. "Crew catch" is not reported (smuggling in duffle bags). But some also felt it was a self-limiting fishery - in view of the above one may not necessarily need to cut the TAC as hard as one might think from the data.

*SPA 5 – Annapolis Basin*

1. Weight-shell heigth increase; egg resorption by spring spawners possible; aquaculture/wild relationship (does aquaculture enhance recruitment); why not open at other time of year? (coldest days will freeze prerecruits). March is better, meat condition improves as well.

Research Recommendations

*SPA 4 – Digby*

1. Look at survey design and lemon weed problems (e.g. recalculate indices without lemon weed sets).

2. Industry representatives have expressed concern about the presnece of branching bryozoans ("lemon weed") that interfere with scallop dragging. Given the potential importance of these organisms to scallop larval settlement and to juvenile/adult populations, scallop habitat issues related to branching epifauna should be a high research priority for Area 4.

## SPA 2, 3 AND 7 - BRIER ISLAND AND LURCHER

Working Paper:

S.J. Smith, M. Lundy and R. Claytor. Scallop Production Area 2, 3 and 7: Stock Status Update for 1999. RAP Working Paper 99/76.

Referees: J. Grant and S. Harley

Rapporteur: P. Koeller

Remit:

- Assess the status of Area 3 and 7 scallop until end of 1999 fishery. The assessment should include:
  -An analysis of existing CPUE and survey information.
  -Where possible, address research recommendations raised in March 1999.

- Provide advice for the 2000 fishery.

- Produce a section of the Inshore Scallop Stock Status Report and supporting Research Document documenting the results of the assessment.

Issues

1. Misreporting from 3 => 2.

2. Leslie method is very iffy, do not put numbers into SSR.

3. Consider protection of recruits in western part of Area 3 i.e. Bank an area, but how do you enforce it?

4. Need 100% coverage with black boxes

Research Recommendations

Nil.

## SPA 1 – BAY OF FUNDY

Working Paper:

Roddick, D., R. Claytor, M. Lundy, M. Butler, and S.J. Smith. Assessment of the Scallop Stock in Scallop Production Area 1, Bay of Fundy for the Fall of 1999. RAP Working Paper 99/77.

Referees: J. Grant and S. Harley

Rapporteur: G. Robert

Remit:

- Assess the status of Area 1 scallop at as late in 1999 as possible. The assessment should include:
  -An analysis of existing CPUE and survey information.
  -Where possible, address research recommendations raised in March 1999.
- Provide advice for the 2000 fishery.
- Produce a section of the Inshore Scallop Stock Status Report and supporting Research Document documenting the results of the assessment.

Summary

1. Leave the TAC at present levels.

Issues

1. Request that the appellation port sampling program be replaced by meat weight sampling program throughout.
2. Heterogeneous stock conditions in SPA 1 do not match the scallop production area. Would there be a better fit by changing the areas' boundarie or a globalisation of management areas?
3. The data for the zone 8-16 mile should be revisited to establish Z-rates; one could also get M this way.
4. The upper Bay of Fundy survey results are very heterogeneous.

5. A model should be applied to Area 1. There are enough data for a length-based population model. The author reported that this process is slowly on-going.

6. The voluntary meat weight sampling program should be scrapped; port sampling must be mandatory and precise to obtain a quantitative and qualitative estimate of what is coming out of the fishery.

7. Confidence interval for E-rates should be provided.

8. By keeping the TAC at the same level, one is waiting for recruitment to increase the stock, waiting for Mother nature to be nice. To be on the safe side, one should reduce TAC levels and not count solely on Mother Nature.

9. Concerns about the size of the area used to calculate biomass which is in the 8-16 mile zone versus the whole area.

10. Concerns about positions giving in log records as for the whole trip versus location of the catch. The author explained that positions are considered as general indicators only.

Research Recommendation

Nil.

## SFA 6 - GRAND MANAN

Working Paper:

Butler, M., M. Lundy, and D. Roddick. Scallop Stock Update for Grand Manan and Southwest New Brunswick, SPA 6-1999. RAP Working Paper 99/78.

Referees: J. Grant and S. Harley

Rapporteur: G. Robert

Remit:

- Assess the status of Area 6 scallop until end of 1999 fishery. The assessment should include:
  -An analysis of existing CPUE and survey information.
  -Where possible, address research recommendations raised in March 1999.

- Provide advice for the 2000 fishery.

- Produce a section of the Inshore Scallop Stock Status Report and supporting Research Document documenting the results of the assessment.

Summary

1. Leave the TAC at present levels.

Issues

1. The inside zone research survey shows relatively good recruitment, especially Duck Island Sound. The area was fished very hard in 1997. Did hard fishing cause incidental mortality high enough for the pulse of seed observed in the 1996 survey to disappear?

2. It is useful that the meat weight sampling program records very small scallops in the catch. How many small scallops freeze on deck during this winter fishery?

3. The survey design is similar to SPA 4. The 80-mm shell height is not a good divider between prerecruits and recruits in SPA 6. Given the unique situation of Duck Island Sound in SPA 6B, it should be separated from the rest of SPA 6B.

4. Concerns about ring size and washers of Digby gear as a source of mortality for prerecruits. It was pointed out that the issue is to be addressed at ISAC this year.

5. Research proposal that mortality of prerecruits should be examined when winter fishery takes place in Grand Manan waters.

Research Recommendations

1. The area of Duck Island Sound producing seed should be protected from harvesting (seed box, nursery area). It would be worthwhile to gather knowledge on mortality induced by fishing to increase future yields from the 1997 year-class, latest year class of seed observed in Duck Island Sound. Fishing practices should also be examined toward reducing incidental mortalities due to gear, weather conditions, etc.

2. The sporadic appearance of pre-recruits in the inside zone of Grand Manan, and their rapid disappearance in zones of heavy fishing pressure, suggests that sources of mortality related to gear may be significant. These issues include mortality on the bottom, in the drag, and on deck (eg. crushing, winter freeze). In the interest of long-term sustainability of the fishery, gear effects on juvenile damage and mortality should be the basis of future research efforts, such as at-sea sampling and experimentation.

**Appendix 1.** Participants

**Inshore Scallop RAP**
**24-25 November 1999**

| Participant | Address | Telephone | Fax | e-mail |
|---|---|---|---|---|
| | | | | |
| René Lavoie, Chair | DFO, Science, BIO | (902) 426-2147 | (902) 426-8484 | lavoier@mar.dfo-mpo.gc.ca |
| Stephen Smith | DFO, Science, BIO | (902) 426-3317 | (902) 426-1862 | smithsj@mar.dfo-mpo.gc.ca |
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| Maureen Butler | DFO, Science, BIO | (902) 426-5342 | (902) 426-1862 | butlerm@mar.dfo-mpo.gc.ca |
| Brian W. Longmire | Inshore Scallop | (902) 532-5694 | (902) 532-5249 | |
| Shelton Harley | Dalhousie University | (902) 424-0352 | | Harley@mathstat.dal.ca |
| Bruce Osborne | NSDFA | | (902) 424-4671 | Fish.osborneb@gov.ns.ca |
| Dick Stewart | Full Box Scallop Association | (902) 742-9101 | (902) 742-1287 | |
| Robert Miller | DFO, Science, BIO | (902) 426-8108 | | Millerr@mar.dfo-mpo.gc.ca |
| Jon Grant | Dalhousie University | (902) 494-2021 | (902) 494-3877 | Jon.grant@dal.ca |
| Anne Harrington | DFO, St. Andrews | (506) 529-5850 | (506) 529-5858 | Harringtona@mar.dfo-mpo.gc.ca |
| Dale Roddick | DFO, Science, BIO | (902) 426-6643 | (902) 426-1862 | Roddickd@mar.dfo-mpo.gc.ca |
| Ross Claytor | DFO, Science, BIO | (902) 426-4721 | (902) 426-1862 | Claytorr@mar.dfo-mpo.gc.ca |
| Mark Lundy | DFO, Science, BIO | (902) 426-3733 | (902) 426-1862 | Lundym@mar.dfo-mpo.gc.ca |
| Glenn A. Wadman | Westport, N.S. | (902) 839-2023 | (902) 839-2070 | Dbkenney@d.bkenneyfisheries.com |
| Jerry Black | DFO, Science, BIO | (902) 426-2950 | (902) 426-1506 | Blackj@mar.dfo-mpo.gc.ca |
| Jim Jamieson | DFO, Res. Management | (902) 426-8981 | | Jamiesonj@mar.dfo-mpo.gc.ca |
| Curtis Malloch | DFA, St. Geogre | (506) 755-4000 | (506) 755-4001 | Curtis.malloch@gov.nb.ca |
| Ron Crook | NBDFA | (506) 662-7026 | (506) 662-7030 | |

**Appendix 2.** Invitation Letter

Maritimes Region
Science Branch
P.O. Box 1006
Dartmouth, NS B2Y 4A2
E-mail : Claytonv@mar.dfo-mpo.gc.ca

October 20, 1999

Distribution

**Subject: Peer review of Inshore Scallop and Eastern Nova Scotia Shrimp Stocks**

The assessments of Inshore scallop and Eastern Nova Scotia Shrimp stocks in Maritimes Region will be reviewed in the Hayes Boardroom, Fish Lab Building, Bedford Institute of Oceanography, Dartmouth, November 23-26, 1999.

The purposes of peer review are: to identify important questions that may have been neglected; to examine the scientific approaches of the stock assessments; to identify any weaknesses in methodology; to help improve the clarity of assessments; to make research recommendations; and to develop collaborative research programs.

The peer review includes detailed review of stock assessments and Stock Status Reports. Detailed stock assessments will be done for four inshore scallop stocks (Middle Bay of Fundy - Area 1); (Brier Island/Lurcher Shoal and St. Mary's Bay - Areas 3 & 7); (Digby – Area 4); (Southwest New Brunswick – Area 6); and Eastern Scotian Shelf Shrimp.

Copies of the draft assessments and the draft stock status reports will be sent to the referees one week before the meeting to allow them time to become familiar with the material. At the meeting, science staff will provide a brief overview of their assessments which should include: the main conclusions, the supporting evidence, any new methods, and major limitations. The presentation will be followed by comments from any of the scientific referees and then from any of the observers. Finalised stock status reports will be prepared at the meeting. The minutes of this meeting will be published as proceedings.

We greatly appreciate your contribution to this valuable exercise.

***René E. Lavoie, Ph.D.***
RAP Committee Chairman
Science Branch
Maritimes Region
Bedford Institute of Oceanography
P.O. Box 1006
Dartmouth, NS B2Y 4A2
Tel: (902) 426-2147; Fax: (902) 426-8484

c.c. : M. Sinclair, R. O'Boyle
S. Smith, R. Miller
D. Geddes, V. Myra

***Distribution:***

| ***Scientific referees*** | ***Government – Others*** | ***Industry*** |
|---|---|---|
| Jon Grant | Ron Cronk, NB | Keith Amero |
| Shelton Harley | Jim Jamieson, Maritimes | Geoffrey d'Entremont |
| | Tim Surette, DFO/MPO, Yarmouth | Reg Hazelton |
| | Greg Peacock, Maritimes | Vance Hazelton |
| | Bruce Osborne, NS/N.-É. | John Kearney |
| | Carol Ann Rose, DFO/MPO St. Andrews | Brian Longmire |
| | Ian Marshall, DFO/MPO, Yarmouth | Michael Longmire |
| | | Michell Longmire |
| | | Michael Chute |
| | | Greg Thompson |
| | | Klaus Sonnenberg |
| | | R.G. (Dick) Stewart |
| | | Raymond King |
| | | Claude d'Entremont |
| | | Jean St.Cyr |

**Appendix 3.** Remit.

**Area 1 Scallop**

- Assess the status of Area 1 scallop at as late in 1999 as possible. The assessment should include:
  - An analysis of existing CPUE and survey information.
  - Where possible, address research recommendations raised in March 1999.

- Provide advice for the 2000 fishery.

- Produce a section of the Inshore Scallop Stock Status Report and supporting Research Document documenting the results of the assessment.

**Area 3 and 7 Scallop**

- Assess the status of Area 3 and 7 scallop until end of 1999 fishery. The assessment should include:
  - An analysis of existing CPUE and survey information.
  -Where possible, address research recommendations raised in March 1999.

- Provide advice for the 2000 fishery.

- Produce a section of the Inshore Scallop Stock Status Report and supporting Research Document documenting the results of the assessment.

**Area 4 Scallop**

- Assess the status of Area 4 scallop at as late in 1999 as possible. The assessment should include:
  - An analysis of existing CPUE and survey information.
  -Where possible, address research recommendations raised in September 1998.

- Provide advice for the 2000 fishery.

- Produce a section of the Inshore Scallop Stock Status Report and supporting Research Document documenting the results of the assessment.

**Area 6 Scallop**

- Assess the status of Area 6 scallop until end of 1999 fishery. The assessment should include:
  - An analysis of existing CPUE and survey information.
  - Where possible, address research recommendations raised in March 1999.

- Provide advice for the 2000 fishery.
- Produce a section of the Inshore Scallop Stock Status Report and supporting Research Document documenting the results of the assessment.

**Appendix 4.** Meeting Schedule

# Schedule

**Regional Advisory Process**
**Inshore Scallop and Eastern Scotian Shelf Shrimp Assessments**
**Hayes Boardroom, Fish Lab, BIO**
**Dartmouth, Nova Scotia**
**23 - 26 November 1999**

| Time | Tuesday | Wednesday | Thursday | Friday |
|---|---|---|---|---|
| | 23 November | 24 November | 25 November | 26 November |
| | | | | |
| 09:00 – 09:30 | Introduction | Proceedings Review | Proceedings Review | Proceedings Review |
| 09:30 – 10:00 | Eastern Scotian Shelf Shrimp | Inshore Scallop Area 4 | Inshore Scallop Area 1 | Reruns |
| 10:00 – 10:30 | | | | |
| 10:30 – 11:00 | | SSR review if possible | SSR review if possible | |
| 11:00 – 11:30 | | | | |
| 11:30 – 12:00 | | | | |
| 12:00 – 12:30 | Lunch | Lunch | Lunch | Lunch |
| 12:30 – 13:00 | | | | |
| 13:00 – 13:30 | Eastern Scotian Shelf Shrimp | Inshore Scallop Area 3 / 7 | Inshore Scallop Area 6 | SSR Review |
| 13:30 – 14:00 | | | | |
| 14:00 – 14:30 | SSR review if possible | | | |
| 14:30 – 15:00 | | SSR review if possible | SSR review if possible | |
| 15:00 – 15:30 | | | | |
| 15:30 – 16:00 | | | | |
| 16:00 – 16:30 | | | | |
| 16:30 – 17:00 | | | | |

**Appendix 5.** List of Documents Tabled.

Butler, M., M. Lundy, and D. Roddick. Scallop Stock Update for Grand Manan and Southwest New Brunswick, SPA 6-1999. RAP Working Paper 99/78.

Roddick, D., R. Claytor, M. Lundy, M. Butler, and S.J. Smith. Assessment of the Scallop Stock in Scallop Production Area 1, Bay of Fundy for the Fall of 1999. RAP Working Paper 99/77.

Smith, S.J., M. Lundy and R. Claytor. Scallop Production Areas 4 and 5 in the Bay of Fundy: Stock Status Update for 1999. RAP Working Paper 99/75

S.J. Smith, M. Lundy and R. Claytor. Scallop Production Area 2, 3 and 7: Stock Status Update for 1999. RAP Working Paper 99/76.

**Appendix 6.** List of Recommendations.

## SPA 4 DIGBY AND SPA 5 ANNAPOLIS BASIN

*SPA 4 – Digby*

1. Look at survey design and lemon weed problems (e.g. recalculate indices without lemon weed sets).

2. Industry represnetatives have expressed concern about the presnece of branching bryozoans ("lemon weed") that interfere with scallop dragging. Given the potential importance of these organisms to scallop larval settlement and to juvenile/adult populations, scallop habitat issues related to branching epifauna should be a high research priority for Area 4.

## SPA 2, 3, and 7 – BRIER ISLAND AND LURCHER

Nil.

## SPA 1 – BAY OF FUNDY

Nil.

## SPA 6 - GRAND MANAN

1. The area of Duck Island Sound producing seed should be protected from harvesting (seed box, nursery area). It would be worthwhile to gather knowledge on mortality induced by fishing to increase future yields from the 1997 year-class, latest year class of seed observed in Duck Island Sound. Fishing practices should also be examined toward reducing incidental mortalities due to gear, weather conditions, etc.

2. The sporadic appearance of pre-recruits in the inside zone of Grand Manan, and their rapid disappearance in zones of heavy fishing pressure, suggests that sources of mortality related to gear may be significant. These issues include mortality on the bottom, in the drag, and on deck (eg. crushing, winter freeze). In the interest of long-term sustainability of the fishery, gear effects on juvenile damage and mortality should be the basis of future research efforts, such as at-sea sampling and experimentation.